

AMENDMENTS TO THE CLAIMS

1. **(Currently Amended)** A method of for determining or identifying a compound that modulates the ~~contractile state~~ function of a blood vessel in an isolated retina, ~~wherein a change in the contractile state of a blood vessel in an isolated retina is determined in the presence of a test compound, said change indicating that the test compound comprising contacting an isolated retina with a test compound and determining a change in the contractile state of said blood vessel, wherein said change indicates that the compound modulates the contractile state of the blood vessel function.~~

2. -114. (Cancelled)

115. **(New)** A method of determining or identifying a compound that modulates the contractile state of a blood vessel in an isolated retina comprising:

- (i) providing an isolated retina;
- (ii) contacting a test compound with said isolated retina; and

determining a distortion of said blood vessel, wherein said distortion indicates that said compound modulates the contractile state of a blood vessel in an isolated retina.

116. **(New)** The method of determining or identifying a compound of claim 1, wherein the isolated retina is fixed to a support.

117. **(New)** The method of determining or identifying a compound of claim 1, wherein the retina is a whole retina.

118. **(New)** The method of determining or identifying a compound of claim 1, wherein the contractile state of a blood vessel is determined visually.

119. **(New)** The method of determining or identifying a compound of claim 1, wherein the size, dimension or volume of the blood vessel is determined.

120. **(New)** The method of determining or identifying a compound of claim 115, wherein the method further comprises:

washing the isolated retina with a suitable buffer or aqueous solvent that is not damaging to the integrity of the retina or contractile function of the retinal blood vessels for a time and under conditions sufficient to remove the compound or reduce its activity to a level that does not affect blood vessel contraction.

121. The method of determining or identifying a compound of claim 1, further comprising:

determining a distortion in the retinal blood vessel; contacting the retinal blood vessel with a second test compound; and determining a distortion in said retinal blood vessel, wherein said distortion indicates that said compound modulates the contractile state of the retinal blood vessel.

122. (New) A method of diagnosing impaired retinal blood vessel function in a subject comprising administering to the subject a pharmaceutically acceptable amount of a compound that modulates blood vessel function under conditions sufficient to modify the contractile state of a blood vessel, wherein said compound is identified by a method comprising determining a change in the contractile state of a blood vessel in an isolated retina in the presence of said compound, wherein said change is indicative that the compound modulates blood vessel function, and detecting a change in the contractile state of the subject's retinal blood vessels.

123. (New) A method of diagnosing impaired retinal blood vessel function in a subject, the method comprising:

administering to the subject a pharmaceutically acceptable amount of a compound that modulates the contractile state of a blood vessel in an isolated retina wherein said compound is identified by a process comprising determining a change in the contractile state of a blood vessel in an isolated retina in the presence of said compound, wherein said change is indicative that the compound modulates retinal vessel function; and

detecting a distortion of a blood vessel in the retina of the subject,

wherein a slow or unsubstantial dilation or constriction of the retinal vessel indicates retinal vessel damage.

124. (New) The method of diagnosing impaired retinal blood vessel function of claim 122, wherein size, dimension or volume of the blood vessel is determined.

125. (New) The method of diagnosing impaired retinal blood vessel function of claim 122, wherein the method comprises contacting the subject's eye with an effective amount of at least one compound selected from the group consisting of:

pituitary adenylate cyclase-activating polypeptide (PACAP), vasoactive intestinal polypeptide (VIP), a compound having activity on phospholipase C (PLC), a compound having activity on protein kinase A (PKA), a compound having activity on ion-channel hyperpolarisation channels, and a non-steroidal anti-inflammatory drug (NSAID), or a homologue, analogue or derivative thereof.

126. (New) The method of diagnosing impaired retinal blood vessel function of claim 122, wherein the NSAIDs is selected from the group consisting of aspirin, pyrazolones, fenamate, diflunisal, acetic acid derivatives, propionic acid derivatives, oxicams, fenamates such as mefenamic acid, meclofenamate, the group consisting of: phenylbutazone, diflunisal, diclofenac, Voltaren, indomethacin, sulindac, N-phenylanthranilic acid, etodolac, ketorolac, nabumetone, tolmetin, ibuprofen, fenoprofen, flurbiprofen, carprofen, ketoprofen, naproxen, piroxicam, indomethacin and flufenamic acid, and a derivative thereof.

127. (New) The method of diagnosing impaired retinal blood vessel function of claim 122, wherein the NSAID is N-phenylanthranilic acid or flufenamic acid or flurbiprofen.

128. (New) The method of diagnosing impaired retinal blood vessel function of claim 122, wherein the NSAID is flurbiprofen in the R-isomer form, or S-isomer form.

129. (New) A method of treating a subject having impaired retinal blood vessel function comprising administering to the subject an amount of a pharmaceutical composition comprising a compound that modulates retinal blood vessel function and a pharmaceutically acceptable carrier, diluent or excipient, wherein said compound is identified by a process comprising determining a change in the contractile state of a blood vessel in an isolated retina in the presence of said compound, wherein said change is indicative that the compound modulates retinal blood vessel function.

130. (New) The method of treating a subject according to claim 18, wherein said compound is identified by:

providing an isolated retina;

contacting a test compound with said isolated retina; and

determining a distortion of said blood vessel, wherein said distortion indicates that said compound modulates the contractile state of a blood vessel in an isolated retina.

131. (New) A method of treating a subject having impaired retinal blood vessel function comprising administering to the subject an amount of a pharmaceutical composition comprising a compound that modulates retinal blood function and a pharmaceutically acceptable carrier diluent or excipient, wherein said compound is selected from the group consisting of:

pituitary adenylate cyclase-activating polypeptide (PACAP), vasoactive intestinal polypeptide (VIP), a compound having activity on phospholipase C (PLC), a compound having activity on protein kinase A (PKA), a compound having activity on ion-channel hyperpolarisation channels, and a non-steroidal anti-inflammatory drug (NSAID), or a homologue, analogue or derivative thereof.